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Barlow. Hemiatrophy
of Tongue.

Reprinted from Vol. XXII of the 'Clinical Society's Transactions.']

Case of Hemiatrophy of Tongue with paralysis of soft palate following an injury to the upper cervical spine, and (?) to the rim of the foramen magnum. By Thomas Barlow, M.D. *Exhibited April* 26, 1889.

STEPHEN W., a neglected child, æt. 7, was brought to the Hospital for Sick Children, Great Ormond Street, on February 1, 1888, by a friend who could give very little account of him. By degrees from his relatives a history was obtained, but there are important gaps in it which cannot be filled up. The child was regarded as healthy until two and a half years before admission, when he was thrown out of a wheelbarrow and fell on his head. It is stated that there was no bruising, and the boy only complained subsequently of pain and stiffness of the neck. He was taken to the Great Northern Hospital on account of these symptoms, but the date cannot be given. Twelve months after this accident he was admitted to St. Bartholomew's and remained there for three months, wearing a jacket and being kept in bed. The child was much more comfortable after this, but still kept his neck stiff.

Nothing was noticed wrong with his tongue whilst in St. Bartholomew's Hospital. During the last twelve months he has been much neglected owing to his mother's death. For one month past he is stated to have had difficulty of swallowing, and a strange sort of cough. During this time it has been noticed that when he drank, fluids sometimes came back through his nose.

The boy when brought to me was much emaciated. The head was held fixed and inclined towards the right shoulder; there was considerable interference with rotation, more on the right side than on the left, although the nodding movement was preserved. The right trapezius seemed a little less developed than the left. There was no pain elicited on gentle percussion of the neck, but it was clear that there was alteration of relation of the upper cervical vertebræ. As there was a little deep thickening and we were reluctant to explore too closely, we could only form the opinion that there was probably some disease of the upper cervical spine. There was no retro-pharyngeal swelling or sign of abscess in the neck. In the lumbar region there was a little lateral curvature, and slight

angular curvature also, with prominence of the second lumbar spine.

The most remarkable symptoms were those referred to the mouth cavity and throat. First, in regard to the tongue, the right half was found to be considerably smaller than the left.

The wasting was most marked in the middle third of the right half; the mucous membrane there, was thrown into loose folds as though the central portion was not full enough to keep the shape of the tongue intact. The muscular fibres, however, were by no means completely atrophied because there was a certain amount of fibrillary tremor to be seen. In the anterior third there was also marked wasting, but the mucous membrane was smooth and did not present any rugæ. When the tongue was protruded there was a little deviation towards the right. The sense of taste on the right side seemed on the first occasion when tested to be somewhat defective, but I doubt whether the examination was satisfactory.*

The soft palate was unduly pendulous, and did not present the normal characteristic pit on each side when the patient uttered the sound *ah*. When liquids were given there was occasionally slight regurgitation through the nostrils, and when there was no regurgitation the effort of swallowing frequently gave rise to a slight cough, and the boy was careful to take very small quantities of fluid at a time. The voice was rather weak and somewhat nasal in character and the cough had the remarkable ineffectual quality which indicates imperfect closure of the glottis.

The chest movement was somewhat deficient; there was no dulness in front but some impairment behind and abundance of râles, which were rather sharp, especially below the left scapular angle.

There were no abnormal abdominal signs and there was a singular absence of nervous signs beyond those which have been mentioned. Thus there was no alteration of the fundus oculi and no ocular paralysis or loss of accommodation. One pupil was slightly larger than the other, but both responded to light and accommodation. The facial on both sides was intact and so were both sensory and motor divisions of the fifth. The grip of the two hands was equal. The lower limbs were thin but not out of proportion with the rest of the body. The knee-

* The sense of taste, as well as the tactile sense, are quite accurate on the two sides now (April 26, 1889).

jerks were normal and there was no sign of paralysis of movement or sensation. The sphincters were natural. During the six and a half months that the boy was in hospital the temperature, taken morning and evening, was for the most part normal. On one occasion only it reached 100°.

He was kept lying in the horizontal position with the head fixed for more than four months, and then very cautiously allowed to sit up with support, and after five months was allowed to walk a little. The improvement in his general nutrition brought about by strict rest and food was very remarkable. At the end of two months there was marked improvement in the movement of the palate, but even at the end of five months the voice remained slightly nasal and he still occasionally coughed directly after swallowing. The chest signs had almost cleared, but the tongue condition remained unchanged.

At the end of six months he was able to run about without difficulty and was sent to the Convalescent Department.

I have seen him at intervals since, and may briefly state what is the present condition of the boy as demonstrated this evening (April 26, 1889), about fifteen months after the period when he first came under my observation. The spines of the cervical vertebræ are much more easily felt than they were, but it is now quite clear that the atlas and axis are in a plane anterior to their normal situation. The head is habitually held a little inclined towards the right shoulder.

The nodding movement is quite free, but rotation is still a little interfered with, especially towards the right. The boy can shrug his shoulders well on both sides, and the neck-muscles seem now fairly developed, the right sterno-mastoid being generally a little contracted but not rigidly so.

The two sides of the palate move equally and naturally; there is no abnormality of swallowing or speech. The condition of the tongue is unchanged, and is well shown in Mr. Lewin's drawing (Plate XIII). There is still marked atrophy of the right half, most striking in the middle third. The rugæ remain and the febrillary tremors are still to be seen. I have tested the two sides of the tongue with feeble faradic and constant currents.

The right side definitely responds to weak faradism, but there is much less movement than on the left, possibly because there is less bulk of muscle. To the weak constant current there is response, but as in a normal muscle there is better response to negative closure than to positive closure.

The boy can discriminate bitters, sweets, and aromatics quite distinctly with the right side of the tongue as well in fact as he can with the left. I fail now to detect any signs of disease of the chest. His general nutrition is fair, but there is still some prominence of the second lumbar spine. No indications are present of any abscess or weakness of the lower limbs.

Remarks.—The symptoms presented by this boy puzzled me exceedingly, and I am still in doubt as to the complete explanation of some of them. The lung condition (extensive bronchitis with slight local impairment and a little bronchial breathing), the emaciation, the indication of damage to the cervical spine and the slight prominence of the lumbar spine suggested at first that it was a case of generalised lung tuberculosis with some spinal caries also presumably tubercular in nature. But it is certainly remarkable that during the boy's stay in hospital he was all but free from pyrexia and that the lung condition has, so far as I can judge, completely subsided. It is also noteworthy that there has been no enlargement of the lymphatic glands of the neck. The history given of the case, imperfect as it was, seemed to point to a traumatic origin, and I think the most reasonable hypothesis is that there was some fracture and slight dislocation of atlas and axis with possibly some injury to the rim of bone forming the foramen magnum.

The exact date of onset of the tongue lesion cannot be determined. It is possible that it may have arisen, not from the original injury, but from cicatricial processes subsequently induced. But in any case the damage, whether primary or secondary, seems to have involved the right hypoglossal nerve near its root. In the third volume of the *Transactions of the Clinical Society* a case is reported by Sir James Paget in which atrophy of one half of the tongue occurred subsequently to a partial fracture of the atlas and the occipital bone. From some sinuses in the back of the neck some pieces of bone were at length removed, one of which proved to be part of the rim of the foramen magnum. In Sir James Paget's case the tongue ultimately recovered its natural size.

It remains to be seen whether this little boy's tongue will recover, but in the meantime the one-sided atrophy gives him no trouble.

The flaccid condition of the palate, with the slight difficulty in swallowing, the occasional regurgitation of fluids through the nostrils, and the nasal speech seem to have been due to

damage to those fibres of the spinal accessory which, according to the recent experiments of Horsley and Beevor, may be fairly assumed to innervate the muscles of the palate.

Although I did not attempt to make a laryngoscopic examination in this child, I have no doubt, from the ineffectual "empty" character of the cough, that there was an imperfect performance of that preliminary closure of the glottis which normally precedes the act of effective coughing. And inasmuch as the larynx has its motor supply from the spinal accessory fibres it is, I think, fair to connect the above symptom, as well as the change in the palate, to damage of the spinal accessory nerves. Is it possible that the lung condition was a sort of waterlogged state dependent on this imperfect closure of glottis preliminary to the cough?

The resemblance of this case, so far as palate and glottis were concerned, with one of diphtheritic paralysis was very striking indeed. But there were two notable differences: (1) that in this case there were no ocular paralyses or failure of accommodation, and (2) that the knee-jerks were normal throughout.

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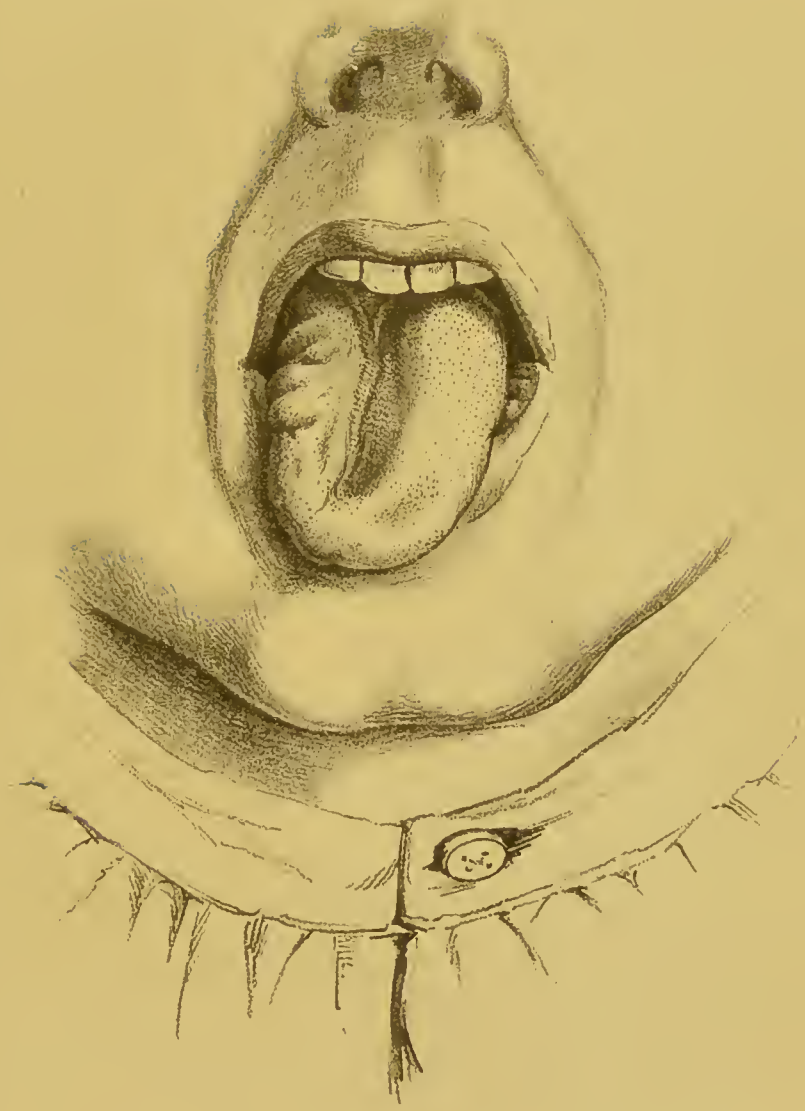

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